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Dembo

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[54] **METHOD AND APPARATUS FOR OPTIMAL PORTFOLIO REPLICATION**

[76] Inventor: Ron S. Dembo, 822 Richmond St. W., Toronto, Ontario, Canada, MCJ 1C9

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[52] U.S. Cl. 705/36

[58] Field of Search 705/36, 37, 35; 395/925

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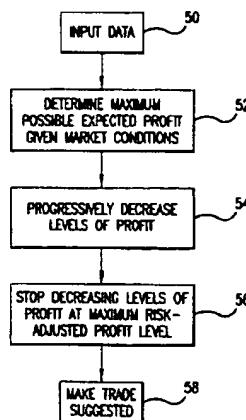
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Primary Examiner—Donald E. McElheny, Jr.
Attorney, Agent, or Firm—Kenyon & Kenyon

[57] **ABSTRACT**

A method and apparatus for determining an optimal replicating portfolio for a given target portfolio involves an initial step wherein a user defines a target portfolio to be replicated, a set of available market instruments from which the replicating portfolio may be created, a set of future scenarios, a horizon date, and a minimum profit to be attained. A representation of the trade-off between risk and expected profit for some arbitrary replicating portfolio is then determined and used to calculate a maximum risk-adjusted profit. The maximum risk-adjusted profit reflects that level of return that may be achieved with an optimum degree of risk; that is, it reflects that point in the risk/reward trade-off where a marginal cost of risk is equivalent to a marginal benefit attainable by assuming that risk. The method then uses the predefined set of available market instruments to identify a set of transactions that will create a replicating portfolio that will achieve the maximum risk-adjusted profit. The method and apparatus also derives the information required to compute a risk premium for pricing of portfolios in incomplete markets, and performs the computation.

12 Claims, 8 Drawing Sheets



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